

# High Tech Presentations The Easy Way

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## 1. Abstract:

This session will present successful methods of utilizing high tech systems to make presentations in the classroom as well as at conferences with emphasis on the procedures and pitfalls involved. Activities covered will include internet, CDROM, video streaming and multimedia presentations.

## 2. Overview

This is not a formal paper, but instead a set of notes that will support materials discussed in the workshop. Some additional materials can be found at the authors website (<http://claymore.engineer.gvsu.edu/~jackh>).

## 3. Presentations in General

- Different purposes for presentation;
  - academic lectures
  - short technical presentations
  - short non-technical presentations
  - long workshops
  
- Main presentation types;
  - board with chalk/markers
  - overheads
  - slides
  - video
  - computer with data projector
  
- The main elements in a computer based presentation are;
  - electronic slides
  - software demonstration
  - other media types, including sound
  - distance connection

- Typical technology presentation problems are;
  - unfamiliar with the technology
  - layout is not suited to computer projector
  - presenter stops presenting, and starts using the computer
  - the presentation is overwhelming
  
- Some data on visual presentations;
  - Visuals help the audience retain more information. I prefer to use figures and text that are parallel. This helps people with preferences for pictures or words still get the same content. (Note: This text would be terrible for a presentation.)
  - Some statistics from reference [1];
    - 75% of our stimuli comes from the senses.
    - 55% percent of what an audience learns comes directly from the visual messages seen during a presentation.
    - 38% from audio messages.
    - 10% of the information presented verbally is retained.
    - 50% of the information is retained when presented verbally and visually.
    - meetings with visuals are 26.8% shorter.

## 4. Good Presentation Techniques

### 4.1 Visuals

- The following tips help make visuals more effective.

#### General

- Keep it simple.

#### Content

- Test your presentation for size and look - are they easy to read, can they be followed, do they convey the information?

#### Layout

- If you plan to refer to an earlier slide, make a second copy of it - don't flip back.
- Use titles to make the purpose of visuals obvious.
- Use bullet points - long sentences crowd the screen and are hard to read.
- Do not use more than 20 words per slide, do not try to write full sentences on slides, use it as a summary.
- Don't provide pages as 1/20, 2/20, ....., 20/20 - it makes the presentation feel like a countdown.

#### Fonts and Text

- Use upper/lower case only to draw attention to words, do this sparingly.
- Use a large enough font so that it can be read with ease.
- Use white space to make the screen more readable - if the slide is too full it will overwhelm the reader.
- Avoid multiple fonts - these look sloppy.
- Avoid italics, bold and upper case for emphasis - this makes it too busy.
- When doing point form punctuation can be distracting.

#### Graphics

- Do not use too many lines on graphs - more than 3 will be hard to follow.
- Use figures or graphs when possible to reduce the number of words.
- Use graphs or charts for numbers - avoid large table.
- Use line drawings instead of scanned images or photographs, they are easier to make out.
- Avoid equations when possible.
- If possible have something to pass around - don't just talk about it or show a picture.

#### Appearance

- Avoid excessive colors - use a couple to pull graphics together. Three or more is too much.
- Don't use numbered points, unless identifying importance or sequence.

## 4.2 Speaking Tips

- Good elements of any presentation include;
  - Eye contact with all areas of the room for a few seconds on individuals.
  - Interaction with audience.
  - Do not stand behind the podium.
  - Avoid wild motions, use them to keep some life in the presentation.
  - Move around the room, but don't continually walk.
  - Look at the audience much more than the screen.
  - Try to act naturally - try not to 'put on a personality'.
  - Don't read from the visuals.

## 5. Presentation Technology

- Some technology tips include;
  - Limit the use of sound/video as formats are not supported universally.
  - Use hyperlink to files to be used for demonstrations - this can automatically start applications.
  - For photographs use full screen images with good brightness.
- Advantages;
  - Visuals can be distributed by the web.
  - The presentation can be changed at the last minute.
  - Can make presentations easy to prepare.
  - Cut/paste is easier than with other methods.
- Disadvantages;
  - More time is required to deal with the technology.
  - Some support is normally required for networks, projectors, etc.
  - Computer support is not yet universal. Computer projectors are expensive, and network connections are uncommon and complex to connect.
  - Hardware and software is not yet common, and each new piece of equipment has a learning curve.
  - The resolution of computers is well below overheads and slides.
  - More time is required to get familiar with equipment.
  - More equipment is needed.
  - It is hard to write on the screen.

## 5.1 Common Hardware and Software

- The common items needed for presentations are listed below.

Computer - You are likely to take your own laptop computer, or try to use one that is made available. Using your own normally reduces software problems, but getting it to work in a new place can be troublesome. If you use somebody-else's computer you need to get your presentation slides there. It is a good idea to take a separate mouse to plug in to notebooks. The touchpads and other laptop 'mice' can be hard to use in presentation settings.

Data Projector - If possible get a high quality data projector that will connect to your computer. If this is not possible, use an LCD panel on an overhead projector, this will appear a bit dark. Worst case use a computer to TV converter, this will be the least expensive, but the graphic quality is very poor. Your slide fonts and images will need to be 50-100% larger.

Presentation Software - Powerpoint is one of the most common packages. It generally tends to be stable, but some of the keystrokes can get lost in a presentation.

- The following software/hardware will be sometimes used for presentations.

Word Processor/Publishing Software - You may opt to convert your presentation to HTML or PDF. Most packages support these formats. I use Adobe Framemaker, although Microsoft word is a popular choice, and free alternatives exist such as Star Office ([www.stardivision.com](http://www.stardivision.com)). The word processor typically needs to be able to include equations, and figures.

Browser - If presenting in HTML you will need a browser. There are a number of excellent browsers available today, but the two best are available from Netscape and Microsoft. Both can be obtained at no charge. Either will do for the students, and this software can be used as a presentation tool in class.

Application Software - I have used packages such as Working Model, and Mathcad to support lectures. Anybody using the browsers for course notes will need copies of application software to included files. These files will allow the notes to become interactive, visual, experimental, etc. For example, in Statics I have used working model to illustrate the slip-tip problem. There are a large number o packages that offer low cost student editions, or even free demonstration versions that still be used for viewing.

Digital Camera/Scanner - A scanner can be very useful for capturing images on paper. But this should be discouraged. Scanned documents are very large, and can be very slow when downloaded for viewing. Scanned photographs also tend to have a poor quality. A very good option is to buy a digital camera that captures images directly to digital format. These cameras come in a variety of prices, but a good midrange cam-

era can be purchased for \$600 that will give good quality photographs. Within a short period of time these costs will drop quickly, and real time video capture will be an option. Other poor options include camcorders with image capture hardware in a PC. This gives grainy pictures or low resolution.

- Computer projectors have many pitfalls,
  - The most dependable screen resolution is 640 by 480, but this is a very low resolution, most projectors support higher resolutions (800 by 600, 1024 by 768 and 1280 by 1024).
  - At higher resolutions the projector may cut the sides off your screen image.
  - Cables are almost universal, most are SVGA connectors. This is not always true if you are using an Apple computer.
  - Television output is a common option on many laptops but it is not commonly used. These outputs will normally connect to an S-video connector on a normal TV projector which might not be available at the podium. A long video cable would often be needed for this option. Television projectors are poor for data projection because the pixels are set at 60 degree diagonals that make an image blurred, even when well projected.
  - Each projector has unique controls. These are sometimes manual adjustments, or buttons on the unit, other times a remote control is needed. These can be annoying to set, and try to get them set ahead of time. The 'off' button is often hard to find on projectors, you can't just kill the power, it needs to cool when done. Ask somebody to show you. (Note: the buttons get harder to find when the lights are low.)
  - Light from these projectors is still quite dim, so a darkened room is almost essential. Find your lighting switches before the presentation. Some rooms may be all or nothing. One trick I have used is to turn off the lights, but use an overhead projector to create ambient light.
  
- Laptop considerations
  - Cables between the computer and data projector can be a nuisance. Try to position these so you don't trip over them during the presentation. A table large than the laptop, near the projector will allow you to also use a separate mouse and lay out notes on the table.
  - You can often plug your laptop power supply into the projector power bar. This will help power shutdown and other problems.
  - Power management features in laptops will cause them to quit or go to sleep if idle for a few minutes, especially when unplugged. Turn these off before the presentation. If your computer stops during the presentation it will take a while to get it back. Windows NT is very slow rebooting and may cause your presentation to pause for a few minutes.
  - Screen savers should also be turned off.
  - Many laptops don't output video until you hit a key sequence such as 'FN' 'F8', look at the manual for more details. You may need to hit this a few times to get the projector and LCD screen on.

- Some items to remember.

#### Presentation

Presentation on disk - in case your laptop loses it.  
Hard copy of presentation - to look ahead while presenting.  
Overheads - prepare for the worst.

#### Laptop

Power cord - don't forget this.  
Battery - extra batteries can help.  
User Guide - for those little questions.  
Mouse - for ease in the dark.

#### Projector (if you have one)

Projector - don't forget this one.  
Shipping case.  
Power cord.  
SVGA Video cable.  
S-Video cable.  
Mac Adapter (if applicable).  
Remote control and extra batteries.  
Flathead/Phillips mini for cables.  
User Guide.  
Power adapters (if travelling internationally).  
Powerstrip.  
Extension cord (25 ft).

## 5.2 Presenting with Technology

- Some techniques for success are;
  - Use the computer to present new material, then turn on the lights and do problems on the board.
  - If the computer screen is in front of a whiteboard, pull up the screen, and add notes using the screen underneath.
  - Interact with the audience - Ask questions about what was just covered, give a simple problem to solve.
  - Say something ridiculous to get a response.
  - Tell a joke.
  - Walk into the seats.
  - Borrow something for an example.
  - Know the software and hardware.
  - Keep a bit of 'MTV' style in mind. Videos, sounds and other moving things help.
  - Do a 'dress rehearsal' well before - small details such as fonts can ruin all the other efforts. Ask somebody to sit through a short trial run.
  - Turn on the lights and solve problems on the board frequently, it will wake up students going to sleep in the dark.
  - use the spell checker.
  - Watch out for equations.
  - Set up a model for the presentation.
  - Pass-arounds.
  - Show up for presentations early to become familiar with equipment.
  - When testing, test beginning to end, small things can halt the presentation.



## 6. Examples of Presentations

- Top Ten Mistakes Made By Presenters![1]
  - No Presentation Objectives
  - Poor Visual Aids
  - Ineffective Close
  - Mediocre First Impression
  - No Preparation
  - Lack of Enthusiasm
  - Weak Eye Contact
  - No Audience Involvement
  - Lack of Facial Expressions
  - Sticky Floor Syndrome
  
- Examples of presentation problems follow;
  1. The demonstration - the good, the bad and the ugly - playing with your computer during the presentation
  2. All the features, sound, lights, action - too many options
  3. The screen saver - something to look at
  4. Where's the on button? - knowing your equipment
  5. Microfilm - Making the fonts too big or small
  6. Just a bad presenter - no eye contact, mumbling, etc.
  7. The cut and paste - format not right for presentation
  8. The reader - too much details on overheads, and presenter reads
  9. The constant droner - fills all gaps in sound with 'ah', 'um',
  10. The Fiddler - playing with objects and moving too much
  11. The Jedi Knight - laser pointer or weapon? (aka caffeine amplifier)
  12. The Derivation - one big equation
  13. Flipper - spends time jumping backwards in slides
  14. Where's the file? - looking for that lost file on the hard drive

## 7. Other Technology Issues

### 7.1 Networks

#### 7.1.1 Computer Addresses

- Computers are often given names, because names are easy to remember.
- In truth the computers are given numbers.

Machine Name: claymore.engineer.gvsu.edu

Alternate Name: www.eod.gvsu.edu

IP Number: 148.61.104.215

- When we ask for a computer by name, your computer must find the number. It does this using a DNS (Domain Name Server). On my campus we have two '148.61.1.10' and '148.61.1.15'.
- The number has four parts. The first two digits '148.61' indicate to all of the internet that the computer is at 'gvsu.edu', or on campus here (we actually pay a yearly fee of about \$70 to register this internationally). The third number indicates what LAN the computer is located on (Basically each hub has its own number). Finally the last digit is specific to a machine.

#### 7.1.2 Network Types

- The network connection type has an impact on the effectiveness and cost of the connection.

##### 7.1.2.1 Permanent Wires

- These networks are fast, but require a permanent connection
- For a campus network the peak data transfer rate is about (4 GB/hour)
- These types of networks include,
  - Ethernet
  - ATM
  - Fast Ethernet

##### 7.1.2.2 Phone Lines

- The aol network is a good example. It is an extension of the internet that you can reach by phone.
- The phone based connection is slower (about 5 MB/hour peak)
- There are a few main types,
  - SLIP - most common

PPP - also common

ISDN - an faster, more expensive connection, geared to permanent connections

- You need a modem in your computer, and you must dial up to another computer that has a modem and is connected to the Internet. The slower of the two modems determines the speed of the connection. Typical modem speeds are,
  - 52.4 kbps - very fast
  - 28.8/33.3 kbps - moderate speed, inexpensive
  - 14.4 kbps - a bit slow for internet access
  - 2.4, 9.6 kbps - ouch
  - 300 bps - just shoot me

### **7.1.3 Network Protocols**

- What are protocols - sequences that computers must follow when sending and receiving information. These agreed methods make sure that information is sent and received correctly.
- Why do we need protocols - Without some agreement about what information is arriving over the network, it would just seem like garbage. This would be like somebody suddenly sending stock market numbers by morse code without telling us what it is.

#### **7.1.3.1 FTP - File Transfer Protocol**

- This is a method for retrieving or sending files to remote computers.

EXERCISE: In Netscape ask for the location 'ftp://sunsite.unc.edu' This will connect you via ftp the same way as with the windows and the dos software.

#### **7.1.3.2 HTTP - Hypertext Transfer Protocol**

- This is the protocol used for talking to a web server.

#### **7.1.3.3 Novell**

- Allows us to share files stored on a server.

EXERCISE: Look at the 'my computer' icon. The drives from 'F' and up are shared by network, and files are brought to the computer as you request them.

## 7.1.4 Data Formats

- The format of the data is important so that other programs may interpret it correctly.

### 7.1.4.1 HTML - Hyper Text Markup Language

- This is a format that is invisible to the user on the web. It allows documents to be formatted to fit the local screen.

EXERCISE: While looking at a home page in Netscape select 'View - Page Source'. You will see a window that includes the actual HTML file - This file was interpreted by Netscape to make the page you saw previously. Look through the file to see if you can find any text that was on the original page.

- Editors are available that allow users to update HTML documents the same way they use word processors.

EXERCISE: Find a home page in Netscape. Use the 'File - Edit Page' button to start the editor. Notice the buttons along the top for font sizes, colors, etc. Play with a web page and add your own name.

EXERCISE: Type in two new line of text. Name these lines 'sunsite' and 'other'. highlight 'sunsite' first, and select the small chain link at the top of the page. type in the link 'http://sunsite.unc.edu'. Accept this and then highlight the 'other' line. Enter a new link again using 'other.html'. (don't close the edit window, we will use it again shortly)

#### 7.1.4.1.1 Publishing Web Pages

- Once a web page has been modified it is necessary to put it back on the web server.
- When publishing a page with a browser 'FTP' will be used.
- The web page called 'index.html' is the first one to be returned. If you are publishing a main page your main page should be called 'index.html'.

EXERCISE: Using the web page that you modified before, publish the results to your home page. You can do this using the 'publish' option. You will have to provide a site name 'http://YOUR\_SERVER\_NAME/~YOURNAME', a user name, and a password, and call the file 'index.html'. Use Netscape to view your updated home page. Note: You may have to hit reload, as Netscape will keep old copies, and does not automatically reload web pages if it has a recent copy is stored.

EXERCISE: Edit the file again and add a link to 'other.html'. You can do this by highlighting text, and then clicking on the 'link' icon.

- Keep in mind that the website is just another computer. You have directories and files there too. To create a web site that has multiple files we need to create other files or directory names.

EXERCISE: Create a new web page, and add something to it. Publish this page as before, except call it 'other.html'. Call up the browser, and load in the 'index.html' page that you created. Click on the links and see what happens.

- Note that some web servers do not observe upper/lower case and cut the 'html' extension to 'htm'. Microsoft based computers are notorious for this, and this will be the most common source of trouble.

EXERCISE (Basic): Use the Windows ftp program to access your remote account that your web page is set up in. Look at the files and file names. Transfer the files on the web site back to your local computer.

EXERCISE (Advanced): You can open these files in Netscape, edit them, save them back to the disk, and then publish them using the ftp program.

#### 7.1.4.2 URLs

- In HTML documents we need to refer to resources. To do this we use a label to identify the type of resource, followed by a location.
- Universal Resource Locators (URLs)
  - http:WEB\_SITE\_NAME
  - ftp:FTP\_SITE\_NAME
  - mailto:USER@MAIL\_SERVER
  - news:NEWSGROUP\_NAME

EXERCISE: In netscape type in 'mailto:YOUR\_NAME@river.it.gvsu.edu'. After you are done try 'news:gvsu'.

### 7.1.4.3 Hints

- Below is a list of hints for publishing web pages
  - Windows will not allow multiple applications to open the same file at the same time. If you seem to be having trouble opening a file, make sure it is not open in another application.
  - As you add other files to your homepage, put them in the 'temp' directory. This will make all of the procedures simpler.
  - Try to make your web pages small, and link them together. This will decrease download time and make browsers happier.
  - Avoid using excessive images. Anything over 10K will make it very slow downloading over modem. Anything over 100K makes modem downloading painfully slow.
  - When putting images on the web page use 'jpg' for photographic images, and 'gif' for line images. 'jpg' images can be compressed more than 'gif', but lines will become blurred.
  - To link to other files or web pages there will be a 'link' command. If you want to add a file that is in your 'temp' directory, just put the name of the file in the 'URL' field.
  - Watch upper/lower case. This is a major cause of web page problems.

### 7.1.4.4 Specialized Editors

- There are a variety of editors that will allow us to edit single web pages or entire sites.
- These programs include,
  - Microsoft Word
  - Powerpoint
  - WebCT
  - Frontpage

EXERCISE: Start Microsoft Word and create a new document. Save this document as HTML on the hard drive. Use notepad to open the file and see how it relates to the original file.

### 7.1.4.5 PDF

- A format proposed by Adobe. This is not a 'standard', but is very widely accepted.
- When documents are presented in pdf format their original layout is preserved (HTML will actually change the look/layout of a document), but the files become hard/impossible to work with.
- A special plug-in is required to view these files.

EXERCISE: Point Netscape to 'http://claymore.engineer.gvsu.edu/~sahlis/214' and look under handouts for a PDF file.

#### 7.1.4.6 Compression

- We can make a file smaller by compressing it (unless it is already compressed, then it gets larger)
- File compression can make files harder to use in Web documents, but the smaller size makes them faster to download. A good rule of thumb is that when the file is MB in size, compression will have a large impact.
- Many file formats have compression built in, including,
  - images - JPG, GIF
  - video - MPEG, AVI
  - programs - installation programs are normally compressed
- Typical compression formats include,
  - zip - zip, medium range compression
  - gz - g-zip - good compression
  - Z - unix compression
  - Stuffit - A Mac compression format
- Some files, such as text, will become 1/10 of their original size.

#### 7.1.4.7 Java

- This is a programming language that is supported on most Internet based computers.
- These programs will run on any computer - there is no need for a Mac, PC and Unix version.
- Most users don't need to program in Java, but the results can be used in your web pages

EXERCISE: Go to 'www.javasoft.com' and look at some sample java programs.

#### 7.1.4.8 Javascript

- Simple programs can be written as part of an html file that will add abilities to the HTML page.

#### 7.1.4.9 ActiveX

- This is a programming method proposed by Microsoft to reduce the success of Java - It has been part of the antitrust suit against Microsoft by the Justice Department.
- It will only work on IBM PC computers running the 'Internet Explorer' browser from Microsoft.
- One major advantage of ActiveX is that it allows users to take advantage of programs written for Windows machines.
- Note: Unless there is no choice avoid this technique. If similar capabilities are needed, use Java instead.

#### 7.1.4.10 Graphics

- Two good formats are,
  - GIF - well suited to limited color images - no loss in compression. Use these for line images, technical drawings, etc
  - JPG - well suited to photographs - image can be highly compressed with minimal distortion. Use these for photographs.
- Digital cameras will permit image capture and storage - images in JPG format are best.
- Scanners will capture images, but this is a poor alternative as the image sizes are larger and image quality is poorer
  - Photographs tend to become grainy when scanned.
  - Line drawings become blurred.
- Screen captures are also possible, but do these with a lower color resolution on the screen (256 color mode).

#### 7.1.4.11 Animation

- These are not video, but moving drawings/cartoons.
- Animations are limited, but are best done with animated gif files.
- Other options include,
  - java programs
  - special plug-ins such as shockwave

EXERCISE: Find an animation on a student page at 'claymore.engineer.gvsu.edu/students.html'.

#### 7.1.4.12 Video

- Streaming built into Netscape for real-time video.

EXERCISE: Point Netscape to 'www.aml.gvsu.edu'. Select and watch the video stream.

- We can also get special plug-ins that will allow us to see video files,
  - MPEG very popular, good compression, and fault tolerant.
  - AVI popular on PC platforms, but limited drivers elsewhere.
  - Apple Quicktime.
- Real-time video conferencing is possible, but not yet practical.

EXERCISE: Start the Netscape Conference software.



#### 7.1.4.13 Sounds

- Sound files are poorly supported, and most require special plugins,
  - real audio
  - wav audio
  - etc

EXERCISE: (If there is a sound card in the computer) Go to [www.mtv.com](http://www.mtv.com) and try to play a sound file.

#### 7.1.4.14 Other Program Files

- We can connect any type of non-standard computer file to our pages, such as a Microsoft Excel file '.xls'.
- To do this we need to,
  1. Put the file in our web directory
  2. Link it to one or more HTML pages
  3. Have the system administrator add this as a MIME type to the system.
  4. When you click on the link to the file in Netscape it will ask you to choose an application. For an excel file you would want to choose '\program files\office97\excel'. This will automatically start when you choose the file next time. If you did not do step 3, or did not choose an application you would be asked to save the file.
- This is an excellent way to extend the capabilities of a web browser.

EXERCISE: Create a Word or Powerpoint file, and put it in your web directory using FTP. Add a link to it in your home page, and test to see if the link works.

### 7.2 Pulling all the Protocols and Formats Together with Browsers

- As you have already seen, the browser (ie, Netscape) helps pull these resources together.
- When we want to do things that are not part of the standard browser, we can use plug-ins.
- Plug-ins are small programs that can be used by Browsers to deal with different Protocols and Formats.

EXERCISE: Go to the Netscape home page, and call up the plug-in directory. Look for a plug-in you would be able to use. You may also want to try ([www.autodesk.com](http://www.autodesk.com)) to find a DWF viewer plugin.

## **8. References**

1. [www.presentersonline.com/training](http://www.presentersonline.com/training)

## **9. Biography**

Hugh Jack is an Assistant Professor in the Padnos School of Engineering at Grand Valley State University. He has been teaching there since 1996 in the areas of manufacturing and controls. His research areas include, process planning, robotics and rapids prototyping. He previously taught at Ryerson Polytechnic university for 3 years. He holds a Bachelors in electrical engineering, and Masters and Doctorate in Mechanical Engineering from the University of Western Ontario.